

### **REMARKS**

The Office Action of March 28, 2007, has been reviewed and the Examiner's comments carefully considered. Claims 1-5, 7, 8, 11-14, 16-21, 25, 31-35, 37, 39-44, 46, 47, 50-53, 55-60, 65 and 66 are pending in the application. Claims 6, 9, 10, 15, 22-24, 26-30, 36, 38, 45, 48, 49, 54, and 61-64 have been canceled. Claims 7, 8, 16-21, 31-35, 37, 39, 46, 47, and 55-60 have been withdrawn from consideration by the Examiner. Claims 1, 11-13, and 50-52 have been amended. Claim 1 has been amended to more clearly distinguish the present invention over the prior art of record. The elected species oxides, which were inadvertently omitted from the claim in the previous amendment, have also been added to claim 1. Claims 11-13 and 50-52 have been amended to change dependencies.

The amendments to the claims are supported in the original claims and in the specification at page 32, lines 10-13, where examples of optical articles are disclosed. No new matter has been added and Applicants submit that these amendments place all of the claims in condition for allowance.

### **Rejections**

Claims 1-5, 9-14, 25, 40-44, 48-53, 65, and 66 were rejected under 35 U.S.C. §102(b), or in the alternative, under 35 U. S. C. §103(a) as being unpatentable over Schmidt et al. (US 5,910,522). The Examiner asserts that the reference discloses a composite adhesive for optical and opto-electronic applications and contains the following: a) transparent polymers such as polycarbonates, and/or polymerizable oligomers and/or monomers suitable for use as adhesive, b) nanoscale inorganic particles, c) optionally, compounds for surface modification of the inorganic particles, and d) optionally, a crosslinking initiator. The Examiner notes that the composite adhesive is suitable for connecting individual components of optical or opto-electronic elements and for constructing such elements. The Examiner further asserts that Schmidt teaches 1-50 percent by volume inorganic nanoparticles. The adhesive composition has a refractive index of from 1.3 to 1.7. The Examiner concludes that the reference discloses the claimed materials and RI values with enough specificity to constitute anticipation. The Examiner further asserts that any minor modifications necessary to meet the claims such as a particular carbonate

resin or surface functionalizing agent are well within the purview of the skilled artisan.

Applicants respectfully disagree with the Examiner's rejection and conclusions regarding claims 1-5, 9-14, 25, 40-44, 48-53, 65, and 66 in view of the present amendment. The Schmidt et al. reference teaches adhesive compositions used to connect optical materials such as fiber optics. The adhesives of Schmidt et al. comprise nanoscale inorganic particles and may contain polymerizable monomers suitable for use as an adhesive. The Schmidt et al. reference does not teach or suggest the present invention, i. e., an optical article selected from the group consisting of plano lenses, ophthalmic lenses, sun lenses, windows, automotive transparencies, and aircraft transparencies, formed from a polymerizable composition comprising a polymerizable monomer component and a nanoparticle material comprising oxides, mixed oxides, alloys, metals, sulfides, carbides, tellurides, selenides, nitrides, or mixtures thereof, the nanoparticle material further comprising a surface modifying chemical comprising a functionalizing agent and a hydrophobizing agent. When at least partially cured, the composition has a refractive index of from 1.595 to 1.695. Further, there is no teaching or suggestion in the reference that the adhesives disclosed therein may be used to prepare the optical articles of the present invention.

There is additionally no teaching or suggestion in the Schmidt et al. reference that the nanoparticle used in the article of the present invention has a refractive index greater than that of the polymerizable monomer (claims 5 and 44), that the nanoparticles comprise any of the surface modifying chemicals recited in claims 12, 13, and 50-52, that the article has at least 50% transparency in a range of wavelengths of from 400 to 700 nm (claim 25), or that the composition has a density of no greater than 1.8 grams/cm<sup>3</sup> (claims 40-44 and 50-53). Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-6, 9-15, 22-28, 36, 40-45, 48-54, 61, 62, and 64 were rejected under 35 U.S.C. §102(b), or in the alternative, under 35 U. S. C. §103(a) as being unpatentable over Kaminsky et al. (US 2004/0233526). Applicants respectfully submit that the Kaminsky reference is predated by the present application, which claims priority under 35 U. S. C. §119(e) to U. S. Provisional Patent Application serial number 60/399,994, filed July 31, 2002, as reflected in the amendment to the

specification and as evidenced by the declaration and filing receipts associated with the present application, copies of which have been submitted herewith for the Examiner's convenience. Reconsideration and withdrawal of the rejection is respectfully requested.

Claims 1-6, 9-15, 22-28, 36, 40-45, 48-54, 61, 62, and 64 were rejected under 35 U.S.C. §102(b), or in the alternative, under 35 U. S. C. §103(a) as being unpatentable over Garito et al. (US 2003/0175004). The Examiner asserts that the reference discloses composite materials that include a host matrix and a plurality of dispersed nanoparticles within the host matrix. Each of the plurality of nanoparticles may include a halogenated outer coating layer that seals the nanoparticle and prevents agglomeration of the nanoparticles within the host matrix. The Examiner further asserts that the reference specifically discloses polycarbonates, the addition of sulfide nanoparticles (which may have surface functionality) and a composite having an RI of 1.6725. The Examiner concludes that the reference is anticipatory. The Examiner further asserts that any minor modifications necessary to meet the claims such as a particular carbonate resin or surface functionalizing agent are well within the purview of the skilled artisan.

Applicants respectfully disagree with the Examiner's rejection and conclusions regarding claims 1-6, 9-15, 22-28, 36, 40-45, 48-54, 61, 62, and 64. The Garito et al. reference teaches optical polymer nanocomposites. The Garito et al. reference does not teach or suggest the present invention as recited in the claims as amended. In particular, there is no teaching or suggestion in the Garito reference of the nanoparticles used therein comprising a surface modifying chemical that is a combination of a functionalizing agent and a hydrophobizing agent, as recited in the instant claims. As defined on page 18 of the instant specification, the term "functionalizing agent" refers to a reactive chemical which can cause a nanoparticle material to covalently bond to a polymerizable composition in which it is used; and the term "hydrophobizing agent" refers to a chemical which can bind and/or be associated with a nanoparticle material such that the affinity for water of the nanoparticle material is reduced, and the affinity for the polymerizable composition in which it is used, is enhanced. There is no teaching or suggestion in Garito to use such a chemically modified particle in an optical article as recited in the instant claims. As noted by the Examiner, Garito discloses the optional use of halogenated

outer coatings on particles, but such coatings do not constitute nor lead one skilled in the art to use nanoparticles comprising a surface modifying chemical which is a combination of a functionalizing agent and a hydrophobizing agent. Garito also discloses nanoparticles made of any of several "active materials", (see Garito, paragraphs [0125]-[0128] and [0130]) but these active materials serve to impart certain physical properties to the particles such as magnetism, electro-optics, and dielectricity. They are not and do not suggest surface modification of a particle using a surface modifying chemical that is a combination of a functionalizing agent and a hydrophobizing agent, as recited in the instant claims. Reconsideration and withdrawal of the rejection is respectfully requested.

### Conclusion

It is believed that Applicants' claims are patentable over the prior art. None of the references, taken alone or in any combination, teach or suggest the optical articles recited in the present claims as amended.

Therefore, reconsideration and withdrawal of the rejection of the claims are respectfully requested. The Examiner is invited to contact Applicants' representative, undersigned below, with any questions.

Respectfully submitted,

A handwritten signature in cursive script, reading "Deborah M. Altman", written in black ink.

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